

United States Patent [19]

Shafer

[11]

4,342,503

[45]

Aug. 3, 1982

[54] CATADIOPTRIC TELESCOPES

[75] Inventor: David R. Shafer, Fairfield, Conn.

[73] Assignee: The Perkin-Elmer Corporation,
Norwalk, Conn.

[21] Appl. No.: 82,699

[22] Filed: Oct. 9, 1979

[51] Int. Cl.³ G02B 17/08

[52] U.S. Cl. 350/443; 350/444

[58] Field of Search 350/200, 201, 199, 442,
350/443, 444

[56] References Cited

U.S. PATENT DOCUMENTS

2,608,129 8/1952 Taylor 350/442
4,061,420 12/1977 Kapreliou et al. 350/200

Primary Examiner—John K. Corbin

Assistant Examiner—Rebecca D. Gass

Attorney, Agent, or Firm—S. A. Giarratana; E. T.
Grimes; T. P. Murphy

[57] ABSTRACT

The first element comprises a relatively thin transmis-

sive shell concave toward the front. The second element comprises a mirror concave toward the front. The front surface of the shell may be spherical, and the rear surface aspheric, or vice versa. The central portion of the first element on either the front or back surface is mirrored to form the secondary of the system. Preferably the secondary mirror is on the front of the first element. In one embodiment the second element is also a transmissive shell. In one form of this embodiment the second transmissive shell is aspheric on the front and spherical on the back. In another form it is spherical on the front and aspheric on the back. In both of these forms the primary mirror is located on the back of the second element. In another embodiment the second transmissive element is aspheric on the front and flat on the back; the front surface being mirrored except for the central portion thereof, through which light from the secondary is focused. In most embodiments all radii of curvature (the base curve in case of aspherics) are substantially equal. Higher dispersion in the second shell than in the first can correct for spherochromatism.

9 Claims, 11 Drawing Figures

